

**REMARKS**

Claims 1-26 are pending in the present application. Claims 1, 3, 6, 8, 10, 12, 13, and 17-19 have been amended. Support for the claim amendments can be found in the specification, *inter alia*, at page 7, lines 4-25, Fig. 1, and the original claims. Claims 21-26 have been added. Support for the new claims can be found in the specification, *inter alia*, at page 5, lines 12-13 and Fig. 4. Accordingly, applicant respectfully submits that no new matter has been added.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, are presented, with an appropriate defined status identifier.

**Claim Objections and Rejections Under 35 U.S.C. § 112, second paragraph**

In the Office Action, claim 12 was objected to. Applicant appreciates the Examiner's suggestions and has amended claim 12 to recite the "protruding component."

In the Office Action, claims 1-20 were rejected under 35 U.S.C. § 112, second paragraph as being incomplete for omitting essential structure. Applicant has amended claims 1, 10, and 18 to recite that the light source is coupled to the housing part and that the receiving element is coupled to the impact detection element. Applicant respectfully submits that the necessary structural connections are now recited and applicant respectfully requests reconsideration of this rejection. Please note that the claimed "optical component" may be an optical fiber; however, this terminology covers other types of optical components as well (such as condenser 47 in Fig. 6).

**Claim Rejections Under 35 U.S.C. § 103(a)**

In the Office Action, claims 1-4, 6-14 and 16-20 were rejected under 35 U.S.C. §103 as being unpatentable over Reimer et al. (USP 6,263,733) in view of Mock (USP 5,664,034). In addition, claims 5 and 15 were rejected under 35 U.S.C. §103 as being unpatentable over Reimer in view of Mock and in further view of GB 2185359. Applicant respectfully traverses these rejections for the following reasons.

A *prima facie* case of obviousness has not been established for the following reasons. First, there is no evidence that one of ordinary skill in the art would have been motivated to combine Reimer and Mock in order to produce applicant's claimed invention. The Office Action does not explain or provide any evidence as to why someone of ordinary skill in the art would have looked to an acceleration sensor (Reimer) and an optical switch for telecommunications (Mock) to produce a contact/impact sensor. The purpose of each cited reference (Reimer – monitoring acceleration of a vehicle; Mock – basic switching, monitoring non-accessed ports) is markedly different than the purpose of the present application (an impact/contact sensor).

Second, even if the Reimer/Mock references were combined, the proposed combination would not work. Reimer teaches emitter/detector units 26(a) and 26(b) which are illuminating the whole space of the foam blocks 24 by "scattering" (see Reimer, claim 1, lines 4-5). As best understood, if the foam block 24 is compressed - due to an acceleration- the density of light in the volume of the foam block increases because the volume decreases. Consequently the detector at the boarder of the foam block receives a higher intensity of light. Therefore the emitter/detector can be placed at arbitrary places at the foam (see for example fig. 5). It would make no sense to place an emitter and a detector opposite one another when the detector is detecting an increased amount of "scattered" light. In addition, if, under the PTO's proposed combination, an emitting fiber were placed at 26(a) and a receiving fiber were placed opposite at 26(b) in the structure of Reimer, the emitter/receiver would not be able to detect a collision (or anything else) because plate 16 would block any light path. Thus, in order for Reimer to work at all as a possible collision sensor, the plate 16 and/or the foam 24 would need to be removed. As this modification would render Reimer

useless as an acceleration sensor and the principle of operation of Reimer would be changed (it would no longer operate an acceleration sensor), the proposed modification is not permitted under MPEP 2143.01.

Accordingly, for at least the reasons mentioned above, applicant respectfully submits that claims 1-4, 6-14 and 16-20 are patentable.

With respect to claims 5 and 15, the cited GB reference (GB 2185359) does not overcome the deficiencies of Reimer/Mock for at least the reasons stated above. Again, the proposed combination would not work as a contact sensor to detect an impact.

Regarding new claims 21-26, these claims are patentable over the cited art for the following reasons. In particular, with respect to claims 21-23, Reimer is completely silent as to the size of the emitting/receiving surfaces. However, even though Mock may suggest fibers arranged opposite one another, neither reference appears to teach that the spacing between the emitting/receiving surfaces is less than the diameters of the fibers. See e.g., specification, at page 5, lines 12-13 (“the light path between receiving surface and emission surface is smaller than the cross section of the emission surface”). In addition, the proposed modification of Reimer with the fiber structure of Mock would not produce a device that operates as claimed in claims 24-26, because plate 16 of Reimer would continuously block a light path between alleged fibers placed at 26(a) and 26(b). Thus, Reimer/Mock do not teach or suggest that during a non-collision, a light path between the receiving surface and the emission surface is not interrupted and during a collision, a light path between the receiving surface and the emission surface is interrupted.

Thus, for at least the reasons mentioned above, applicant respectfully submits that the pending claims are allowable.

**Conclusion**

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

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By

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